

ABSTRACT OF THE DISCLOSURE

A technique capable of preventing breakage of a semiconductor wafer in a single-wafer RTP apparatus is provided. Open-loop control is made in a temperature rising process, in which the temperature of the semiconductor wafer is 500°C or lower, and a revolution speed of the semiconductor wafer is relatively reduced to 100 rpm or lower even if the bowing of the semiconductor wafer occurs. Therefore, a centrifugal force exerted on the semiconductor wafer is reduced, whereby it becomes possible to prevent the semiconductor wafer from dropping from a stage of the single-wafer RTP apparatus. Additionally, closed-loop control is made in the temperature rising process, in which the temperature of the semiconductor wafer is higher than 500°C, and in a main treatment process, and further the revolution speed of the semiconductor wafer is relatively increased. By so doing, the almost uniform in-plane temperature of the semiconductor wafer can be achieved and the bowing of the semiconductor wafer can be prevented.